

8 January 1962

MEMORANDUM FOR THE RECORD

SUBJECT: CODIB Trip to Dayton/Columbus, Ohio Area

Attached report summarizes in detail the briefings given to
CODIB visitors on 12-13 October 1961 by personnel of the Foreign
Technology Division (FTD), Air Force Systems Command, Wright-
Patterson Air Force Base and their contract organization in Columbus,
the Battelle Memorial Institute [REDACTED]

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CODIB Dayton/Columbus Trip: Detailed Summary

- A. Headquarters, Foreign Technology Division (FTD), Air Force Systems Command, Wright-Patterson Air Force Base, Dayton, Ohio (0900 Thursday, 12 October 1961 to 1200 Friday, 13 October 1961)

FTD Participants: Brig. Gen. Arthur J. Pierce, Commander/FTD; Col. Robert J. Gibbons, Deputy for Documentation (TD-B); Capt. Jack Morris, TD-F (Aerospace Weapons Systems); Mr. John S. Honaker, TD-B2 (Chief, STEP Control Division); Mr. George A. Pughe, Jr., Chief, Air Information Division/Library of Congress (AID/LC); Mr. Mark Knapp, TDE2 (Weapons and Industry Division/Science and Components); Mr. I. Herman, TD-D, Deputy for Engineering Support; Major Warren Lamour, TD-B2; Mr. Charles A. Mangio, TDE2; Major Paul J. Wolf, TDE2; Col. Fox, TD-F5 (Space Systems Division); Lt. Col. Dale L. Carstenson, CODIB Conference Project Officer (Administration); Major Claude A. Hughes, Jr., Escort Officer.

Briefings

General Introductory

1. Gen. Pierce welcomed the group then discussed FTD's mission, emphasizing the injection of foreign technology into U. S. technology with consequent time and money savings in U. S. developments; in discussing this pursuit, he put a question familiar to the CODIB group, viz., how does one force-feed the consumers? Col. Gibbons, Conference Chairman, stated that 90% of the conference would be on the written word; he said that 1/3 of the FTD budget of \$6.5 million is spent on documentation. Of the intelligence derived at FTD, 8% on radar comes from open source materials; comparable statistics for other subjects include: communications - 90%, space technology - 40%; rockets - 10%; ram-jet data - 55%. FTD manpower numbers about 920, with 71 in Documentation (TD-B) and 350 contractors in direct support of TD-B; non-Hq. components include 42 persons in Europe; 28 in Japan and Taiwan; 5 in NORAD; 2 in AFIC; 6 in Western Detachment.

2. The point was made with emphasis that no more time could be devoted to theorizing about automating information processing at FTD - that proceeding with automation applications for a single system, utilizing knowledge at hand, is mandatory, and even so, that it will be 1963-65 before the system is operational. Automation cuts across all shops so the major system planning element, it was said, needs to be directly under the Commander, FTD and not on an operating level; this planning group consists of 4 people, who will pull in specialists on specific problems as required. FTD has no 438L money; rather than waiting to see what might develop

out of 438L, they are going ahead, but the system being developed is largely that of 438L. Input and manpower resources were singled out as the great problem areas. FTD is the monitor for Air Force machine translation work, and development of a character reader was stated as the key to the MT field; Baird Atomic and Farrington readers are the devices of interest but the system being developed is not contingent upon successful development of these. Input is by flexowriter: abstracts prepared overseas are already typed on flexowriters when received, since this is unclassified source material. 100,000,000 words per year are scanned.

3. Capt. Morris gave an FTD organizational briefing and included mention of sources of input, interrelations in AFSC and USIB, etc. He also spoke on AIE-11, a detailed report whose summary he read, concerning the threat of Soviet technological capability; this paper stresses the belief that Soviet successes now and presumably in the future will be due in large measure to their efficiency in making use of available information. Gen. Pierce's forced-feeding-of-consumers point was made again.

STEP (Scientific & Technical Exploitation Program): John Honaker

4. On the theory that extracts of documents will usually meet analysts needs, FTD's predecessor began exploiting captured German documents 12 years ago; since that time ASTIA split off as a separate unit. STEP was initiated five years ago and is aimed (97%) at Soviet S&T literature. The policy is to keep everything unclassified for broad dissemination; the problem is to reduce 100-200 million Soviet words/year to about 12 million: about 8,000 books and 34,000 journals are reviewed per year, with some 30,000 abstracts/year produced. TDB-2B has two contractor translators plus an in-house translation capability that is tied in with USIB-community activity. Under TD-B's control are a) the Air Information Division (AID) at the Library of Congress, with 186 people in Washington, plus 10 in Germany maintaining quality control of abstracts done under contract: total budget approximately \$1.6 million/year; b) Project Gold Eagle, an unclassified contract with McGraw-Hill of New York to produce and distribute abstracts to private industry evaluation teams; c) [redacted], a [redacted] for materiel and technology studies and maintenance of voluminous card files called TIPS (Technical Intelligence Processing System). Abstracts are also produced, under contract, mostly by part-time people, [redacted]

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5. STEP originally involved about 30 journals; now it's 500: these have all been formally listed, i.e., are machine controlled, with specific numeric assignment. The STEP process includes: identification of desired subjects; review and selection of articles for abstracting by AID; notification to the field (Germany) of the identified articles within 5-7 days of receipt in AID; production of abstract in Europe within 60 days; typed dupe master received by PWS, screened against FTD requirements and clue words identified; Xerox reproduction of the master for Gold Eagle and production of abstract cards for TIPS file (personalities, technical areas, facilities, and locations) plus selected distribution to FTD analysts identified by an assigned number.

6. FTD analysts are not always able to keep current in their fields, so abstracts are farmed out to industry people working on specific applications; there are 18 such industry teams to date, each with an FTD team guidance member. Gold Eagle reproduces 50 copies of the abstracts for distribution to the teams with an evaluation form. These evaluation forms are returned to New York and sent on to Battelle and FTD analysts; the latter may ask for a full translation - if so, there is a stage two evaluation of the translation from the original or different assessors and the whole package with comments provides (or can provide) direct input to a technical paper. The abstract master also goes to OTS/Commerce which publishes about 90% of the material received for distribution to the U. S. scientific community (3,000 subscriptions). Reviewer profiles are being developed; they estimate 80% accuracy in assigning abstracts to the appropriate reviewer.

7. About 600 journals are procured for AFIC and 4-500 for ACIC of the 2000 total. All 2000 titles have been card punched. Cost of this procurement is \$41,000 per year, including AFIC and ACIC requirements. Evaluators get about \$8.00 per hour; there are an average of 3.4 evaluations done per abstract, with average time per abstract per man being 20 minutes. FTD now gets 30,000 abstracts/year with an anticipated rise to 36,000. Present low quality translation or abstracting rejection rate equals less than 4%.

Air Information Division, Library of Congress

8. Mr. Pughe summarized AID's history going back 13 years to AFCIN's decision to utilize LC sources under Project Treasure Island. He listed sources of documents as FTD and its overseas components, attaches, foreign book dealers and the PPO program, 250 exchange agreements, loans from CIA, ONI, NBS, other libraries, etc. AID publications include a monthly accessions list and weekly selective S&T accessions list.

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9. During the first 9 months of 1961, AID had selected 1850 articles for abstracting plus about 175 books/month; these are listed in OTS/Commerce and are made available to the intelligence community. Quality control records are kept on each abstractor. AID also prepares detailed reports on specifically assigned subjects - studies in depth from open literature which are not disseminated but are "requestable". Detailed bibliographies in specialized S&T fields are prepared; these and the reports are also sent to ASTIA.

10. Side projects: AID provides lexicographic input to the Air Force IBM/Machine Translation project plus dictionary input for photostore - by February 1962 they expect to have 250,000 entries. By-product of skimming 500 journals is taking off the cream for a daily AID press, published weekly by OTS. They contribute to Project Cross Check (discussed below). The key to total AID production is the AID Monthly Announcement Bulletin. AID has 186 people; there are also 150+ in ACIC.

Predicting Weapons Systems for Technologies

11. Mr. Knapp, in discussing the problem of estimating probable future Soviet weapons systems (for U. S. counter measure R&D), stressed the significance of early lead time potential through exploitation of open literature on Soviet manufacturing and materiel developments.

Automation Activities

12. Mr. Herman described TD-D as including photo interpretation, engineering analysis, graphics production and FTD's computer division. Hardware in the latter includes an IBM 7090 (14 tapes - 2 channels), 1401 (4 tapes) plus peripheral gear; work is done on two shifts. They also have a Readix computer for PI work; to come is an analog-digital converter for sensory data reduction. Mission includes scientific computing (80-90% of their effort), information handling, and management data handling.

13. Intelligence Information Handling: Files include Elint Master file (blocked on magnetic tape); Elint Statistical Analysis File; Comint file (blocked on tape and operational); Cross Check (see para. 22 below: two years old and well established now); Personalities and Facilities files with general sort routines; PROJECT INFORMATION. This latter is an experiment begun 15 months ago and includes work on automatic extracting, automatic indexing, Minicard conversion to clue-word indexing, and integration of other's files into FTD. Project considerations include rapid access and search capability, cross correlation, output format. Indexing considered includes the ISC, minicode, ISCUNI, uniterm, clue-word; conclusion reached is that the ISC or clue-word would work equally well for

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document retrieval. For future information retrieval, a numerical system is not satisfactory but a word code is.

14. A general conclusion was stated that abstracts or extracts are all that the FTD analyst requires from the flood of information received. In choosing between the two, extracts (preparable by a non-specialist) are preferred.

15. Input to the experiment will include FTD Tech Briefs (about 5000), the Bombing Encyclopedia, Minicard (about 1000 from AFIC), photographs (narrative description of photo center now on paper tape), personalities, Elint, finished intelligence, STEP abstracts, AID products, facilities data. Tech Briefs were used first: prepared on flexowriters, then converted to magnetic tape and computer processed. Header data was set and sent to the "extract" file; common words (comprising about 40-50% of text) were eliminated; remaining words were arranged alphabetically; frequency count was done on each remaining word; most frequent words and title words were selected to comprise word index for the article; sentences containing the most index words were selected and put in the extract file; sentences are rated and selected to form extract (top 20%).

16. 1000 word document takes 80 seconds to read in, extract, key word, and output; for 5000 word document, break into 2-3,000 word work units for indexing and extracting. Word index is now 23,000 words; expect it will level off at 35,000. Average number of words per document selected is 25. Problem: according to Mr. Herman, only 35% of information reports received are releasable to contractors. Col. Gibbons said subsequently that only 35% of the reports received are sent to White Stork and that, therefore, the major portion of the reports are not incorporated in the TIPS file; this he stated, was a major problem. The principal interest, he said, was to get information into the file in machine readable form.⁷

17. Minicode Conversion: from punched paper tape to cards to mag tape. The ISC was put back into words, tags and modifiers were put into words, and all were put in the index described above. Sample included 1500-2000 minicards.

18. Retrieval: the belief was stated that a user profile can be built to match against incoming information for dissemination. Profile development can be from a user prepared word list or paragraph stating his interests, from analyzing a user's products or analyzing his requests; a profile library can then be maintained. Mr. Herman stated that there is no substitute for the information specialist between the analyst and the file to translate the requestor's language into the system's language.

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19. The experiment described above includes 7000 file entries now (tech briefs plus Minicard); 3 man years of programming effort have been expended to date. It involves unformatted information plus selected words appearing in formatted files. The design provides for batching 10 requests at a time with 30 restrictors; these 10 requests can be processed in 15 minutes, with time reduction possible. With an estimated high point of 35,000 words in the index, two tape rolls would provide storage. Future programming rate depends on managements' desires but 10-15 man years were offered as an educated guess as to the required effort.

Systems Planning Working Group - FTD Forward Look in Automation

20. Major Lamour said that the decision to develop an operational information processing configuration had been made about 21 September 1961 and that a Systems Planning Group had been established on 26 September; the next step was the development of a master plan for studying all aspects of an FTD automated system, proceeding, at the same time with PROJECT INFORMATION. FTD policy is to give the users the major voice in the design of the system which will serve them. He is not convinced of the validity of other existing proposals but does feel that the problems requiring solution are known; he touched on these in the dissemination, input, storage and retrieval areas, mentioning also file maintenance, saying that purging is a must and that the analyst is the keystone in establishing purging criteria. The approach will be on pilot effort bases, FTD solving its own problems - they are no longer able to wait for the community system to come along "some day".

21. He spoke of machine translation, stating that inherent in MT is the ability to produce automatic extracts, and expressing the hope that automatic translation and extraction of 90% of Soviet S&T literature can be accomplished. He described an analysis of the 28 June 61 MT output from IBM's photostore in which 45 FTD analysts filled out questionnaires on the MT product pertinent to their subject specialities: 65% preferred the MT over oral translations (in terms of timeliness and having a record copy); 85% considered the MT useable for content scanning; 35% thought the MT useable as a substitute for human translation. In March 1962 FTD will again evaluate the MT project.

PROJECT CROSS CHECK

22. Mr. Mangio described CROSS CHECK as a compilation of personality and facility information taken from unclassified literature, stating FTD's belief that CROSS CHECK constitutes the most detailed file of information on inter-relationships between individuals and facilities in the intelligence community.

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First efforts were directed toward VIAM -Metallurgy to attempt to answer the question of motivation for Soviet development of a given technology. The need for institute file information was reflected in their check of FTD and CIA holdings on VIAM which produced 80 names; a search of open literature produced over 400 names. The initial approach has now been expanded to include 200 periodicals per month - exploitation being done by AID; books will be included, the aim being to incorporate all pertinent information since 1955. Physical output is magnetic tape including name, status, location, facility, type of association, subject content. This approach is also used in the predicting problem described by Knapp (para. 11 above).

23. Intelligence information on the aerospace industry has been systematized by this approach with 27 facilities identified and, with affiliated personnel, stored on tape; the atomic energy industry comes next. The metallurgical file, which is 90% of the present total file, has 165,000 entries: 3500 facilities and 25-30,000 people. The Project is now one year old although the approach has been used for three years. The AID contract support cost is \$300,000/year. Note: a write-up on CROSS CHECK was requested by Ben Fisher but to date has not been received.

24. Mangio said also that they have the most extensive compilation of Soviet dissertation information in existence in the community.

Special Session

25. Conference split up occurred at this point with part of the group hearing a session on U. S. applications of Soviet technology and the others attending a special session, a brief summary of which is as follows:

- a. FTD established its own place name code in 1959 since the time required to obtain community code changes was prohibitive. They began with the SR/CR/CIA organization subordination code but then developed their own.
- b. They have developed an input edit program; also a place-name or location-to-coordinates program.
- c. Analysts want active hard copy file of five year depth; beyond five years information is stored on aperture cards. Generally their information goes back to 1955.

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CODIB-D-91/1
6 October 1961

UNITED STATES INTELLIGENCE BOARD
COMMITTEE ON DOCUMENTATION

CODIB/CEFLP Field Trip: Dayton and Columbus, Ohio

1. Additional details have been developed since distribution of CODIB-D-91 of 18 September 61. The chartered Convair, [redacted] will depart from the Butler Aviation Terminal (co-located with MATS Terminal) promptly at 0730 DST, Thursday 12 October 1961. The schedule at FTD is quite tight (see Attachment A) so please plan to arrive at the terminal 10-15 minutes prior to 0730. (N.B. Parking is generally not available at Butler Terminal hence the regular Washington Airport commercial parking lots should be used if cars are to be left overnight.)
2. Quotas assigned each agency or department for use by both committees have already been filled, with some additional names submitted on standby basis. As previously stated, the plane's maximum carrying capacity is 32 persons, so if there are any cancellations, please let us know immediately. Quarters have been reserved for 32 in the VOQ at Wright-Patterson AFB.
3. It is the responsibility of each agency or department to send to FTD a statement of security clearance for each of its travelers. The classification level of the program content is SECRET; however, there may be an opportunity for limited discussion of a more sensitive nature hence those possessing special clearance should be so certified. The clearance messages should be addressed to Lt. Col. Dale Carstenson, Foreign Technology Division, Air Force Systems Command, Wright-Patterson AFB, Dayton, Ohio. Lt. Col. Carstenson is in charge of administrative arrangements; Mr. John Honaker is handling substantive arrangements.
4. As the attached program indicates, transportation from Dayton to Columbus will be by Air Force bus. The plane will meet us at the Columbus Airport for a 1630 hour return to Washington on 13 October.

Attachment A: Program
B: Personnel List

[redacted]
Paul A. Borel
Chairman

CODIB-D-91/1
6 October 1961
Attachment A

Program: Dayton/Columbus Field Trip

12 October	0830 EST	: Arrive Patterson Field
	0900-0930	: VOQ Check in
	1000-1020	: Opening remarks (Brig. Gen. Pierce)
	1025-1100	: FTD organization and mission
	1100-1145	: FTD estimating process
	1200-1300	: Lunch
	1315-1445	: STEP briefing (including AID relation- ship,
	1445-1515	: Predicting weapons systems from technological information
	1515-1530	: Coffee break
	1530-1630	: Automation - present and future
	1630-1700	: Project Crosscheck (analyst support system)
	1715-1815	: Social hour (Dutch treat)
13 October	0645	: Transportation from VOQ to Officers Mess
	0745-0800	: Transportation to FTD
	0810-0840	: Systems Planning Group (forward look)

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24 October

0840-0930 : U. S. applications of technology

0930-1000 : General remarks and summation
(Col. Gibbons)

1000-1015 : Transportation to VOQ - check out

1015-1145 : Bus to Columbus

1200-1300 : Lunch

1300-1530 : Briefing and tour:

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1530-1630 : Transportation to Columbus Airport

1630 : Departure for Washington

CODIB-D-91/1
6 October 1961
Attachment B

Personnel List: Dayton/Columbus Field Trip

ARMY: Mr. John F. Kullgren
Col. Fred B. Keller

FBI: Mr. Norman F. Stultz

NAVY: Capt. Donald C. Higgins, USN
LCDR Ralph L. Muros
LT (jg) Paul L. High, Jr.
Mrs. B. Hazel Collins

NBS: Mrs. Ethel C. Mardin

CIA: Mr. Paul A. Borel

AIR: Mr. John H. Toler
Mr. Dan Dyer**
Lt. Col. Clarence Giraud
Maj. Wallace Smith
Maj. Martin Stuk
Capt. Albert Reston

NSA:

DOD: Dr. Ruth M. Davis

JCS: Capt. Jack O. Johnson, USN

STATE: Mr. Benjamin H. Fisher
Mr. W. Wallace Francis
Mr. Max Horlick

AEC: Mr. Harvey Marron
Mr. Martin Snyderman

** Tentative

CODIB-D-91
18 September 1961

UNITED STATES INTELLIGENCE BOARD
COMMITTEE ON DOCUMENTATION

CODIB Field Trip: Dayton and Columbus, Ohio

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1. As requested by the Chairman (CODIB-M-34, para. 12), the Air Force member has arranged for a CODIB briefing on information handling by the Foreign Technology Division (FTD - formerly ATIC), Air Force Systems Command, Wright-Patterson AFB, Dayton, Ohio and by Battelle Memorial Institute, Columbus, Ohio. Present plans call for early morning departure by chartered aircraft on Thursday, 12 October, spending 1 1/2 days at FTD and 1/2 day at returning to Washington from Columbus in the evening of 13 October.

2. Since the USIB Committee on Exploitation of Foreign Language Publications (CEFLP) had scheduled an FTD briefing also, the AFSC people suggested that CEFLP tie-in with the CODIB session. This has been approved by both committee chairmen, so Mr. Bagnall's group will be flying with us.

3. The Convair which has been reserved will seat 32; passenger quotas, including both CODIB and CEFLP representatives, are assigned as follows:

State - 3	DOD - 1
Army - 4	JCS - 1
Navy - 4	AEC - 2
Air - 4	FBI - 1
NSA - 4	DIA - 2
NBS - 1	CIA - 5

Total: 32

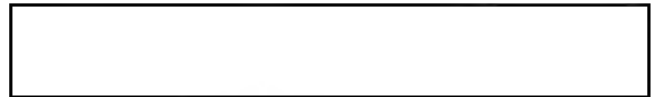
4. As on previous CODIB trips, the fact that CIA has chartered the flight should not be discussed at any time, particularly at the airfield or on the plane in the presence of the crew.

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5. Additional details on departure time, accommodations, etc. will be passed on as soon as they are firm. Please submit the names of those planning to attend by 29 September.

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Paul A. Borel
Chairman